

Test Scenario Procedure for Encounter: Intake

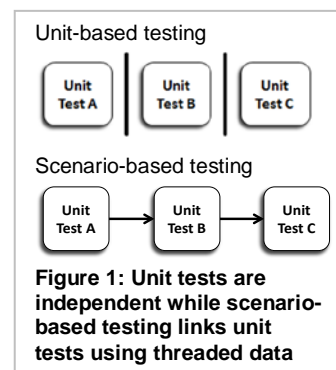
This document describes the test scenario procedure for evaluating conformance of electronic health record (EHR) technology to the certification criteria defined in 45 CFR Part 170 Subpart C of the Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule. The test scenario procedure evaluates conformance to these certification criteria in a clinically plausible workflow. The document¹ references test procedures and derived test requirements with traceability to the normative certification criteria as described in the Test Scenario Procedure Overview document located at <http://www.healthit.gov/certification> (navigation: 2014 Edition Testing and Certification > 2014 Edition Test Method > 2014 Edition Test Scenarios > 2014 Edition Draft Test Scenarios). The test scenario procedures may be updated to reflect on-going feedback received during the certification activities.

The Department of Health and Human Services (HHS)/Office of the National Coordinator for Health Information Technology (ONC) has defined the standards, implementation guides and certification criteria used in the test procedures within the test scenario procedure. Applicability and interpretation of the standards, implementation guides and certification criteria to EHR technology is determined by ONC. Testing of EHR technology in the Permanent Certification Program, henceforth referred to as the ONC Health Information Technology (HIT) Certification Program², is carried out by National Voluntary Laboratory Accreditation Program (NVLAP)-Accredited Testing Laboratories (ATLs) as set forth in the final rule establishing the Permanent Certification Program (*Establishment of the Permanent Certification Program for Health Information Technology, 45 CFR Part 170; February 7, 2011*).

Under the ONC HIT Certification Program, scenario-based testing is an alternative method for testing and certification to the 2014 Edition EHR Certification Criteria. Questions or concerns regarding the ONC HIT Certification Program should be directed to ONC at ONC.Certification@hhs.gov.

TEST SCENARIO OVERVIEW

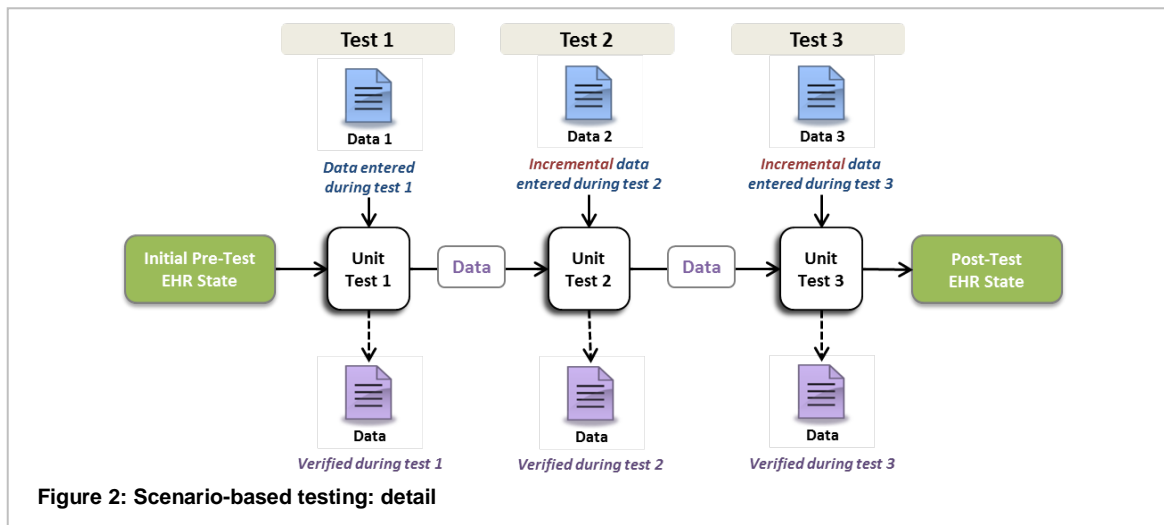
Unit-based testing is a minimum requirement for testing and certification to the 2011 and 2014 Edition EHR Certification Criteria. Scenario-based testing is an alternative method for testing and certification to the 2014 Edition EHR Certification Criteria. As shown in Figure 1, unit-based testing consists of independent tests with individual test data (input) and results (output), while scenario-based testing links unit tests using threaded test data.



¹ Disclaimer: Certain commercial products may be identified in this document. Such identification does not imply recommendation or endorsement by ONC.

² Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition; Revisions to the Permanent Certification Program for Health Information Technology, Final Rule.

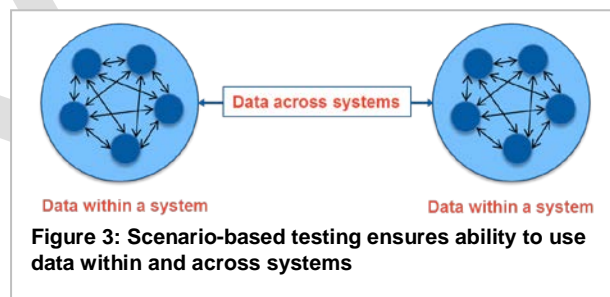
As discussed above, scenario-based testing is an alternative to unit-based testing which links unit tests with dependent inputs and outputs, as shown in Figure 2. The tests, test data, and test results are all dependent; the data output from one test is the test data input for a subsequent test(s).



Within a scenario, unit tests can be added, removed, or rearranged for various reasons, depending on the scenario. For example, a scenario can be made setting-specific (ambulatory or inpatient) by adding or removing unit tests.

The purpose of scenario-based testing is to:

- Make testing clinically plausible
- Ensure ability to use data within and across systems, as shown in Figure 3
- Increase the value of testing
- Improve the efficiency of testing
- Reduce setup of testing
- Make testing consistent and replicable



A scenario represents one possible clinical workflow that could link unit tests. It does not represent the only way that unit tests could be linked in a clinical workflow nor does it imply any requirements about how eligible providers should use EHR technology to attest to meaningful use.

Scenarios will test all of the capabilities of the certification criteria included in the scenario. For guidelines on modifying a scenario, please see the Referenced 2014 Edition Test Procedures section.

TEST SCENARIO NARRATIVE: ENCOUNTER: INTEROPERABILITY INTAKE

This test scenario represents the following clinically plausible scenarios:

Ambulatory

Patient is seen by Provider. During this ambulatory visit, demographics, medication, medication allergy, and problem lists, immunization information, smoking status, family health history, cancer case information, and vital signs for the Patient are recorded, changed, and accessed in the Provider's EHR. This portion of the scenario tests:

- §170.314(a)(3) Demographics
- §170.314(a)(5) Problem list
- §170.314(a)(6) Medication list
- §170.314(a)(7) Medication allergy list
- §170.314(f)(1) Immunization information
- §170.314(a)(11) Smoking status
- §170.314(a)(13) Family health history
- §170.314(f)(5) Cancer case information
- §170.314(a)(4) Vital signs, BMI, and growth charts

Inpatient

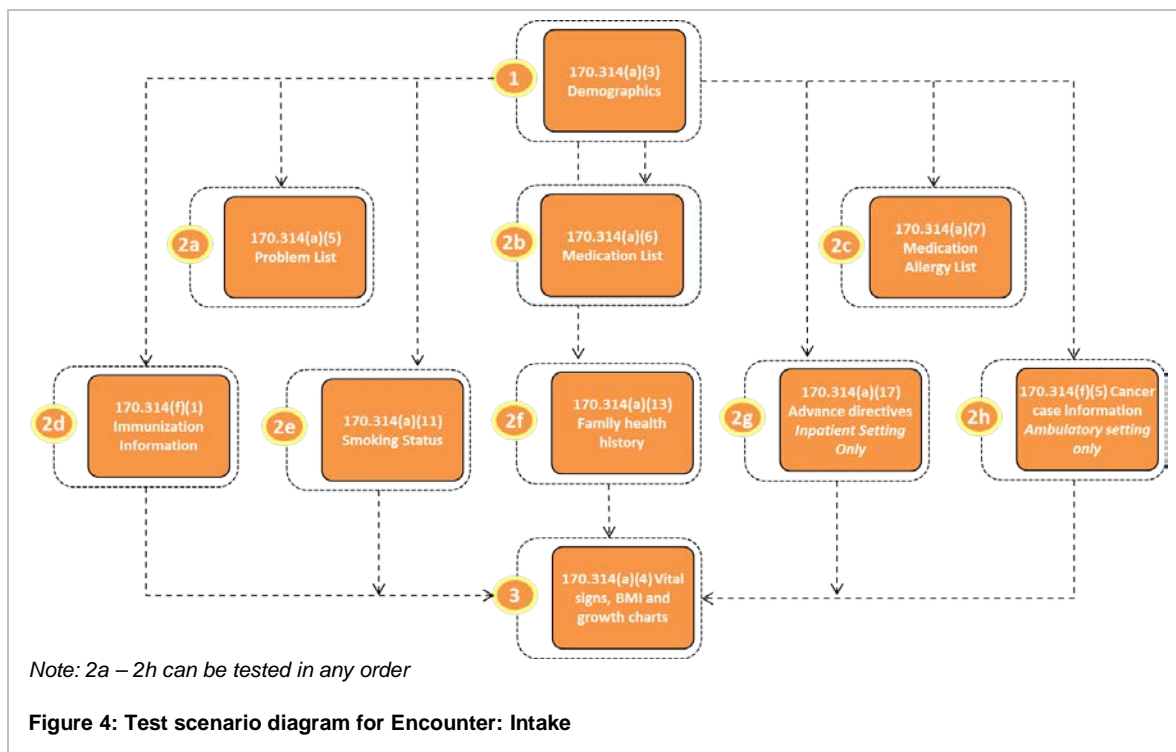
Patient is admitted to Hospital. During this hospitalization, demographics, medication, medication allergy, and problem lists, immunization information, smoking status, family health history, advance directives, and vital signs for the Patient are recorded, changed, and accessed in the Hospital's EHR. This portion of the scenario tests:

- §170.314(a)(3) Demographics
- §170.314(a)(5) Problem list
- §170.314(a)(6) Medication list
- §170.314(a)(7) Medication allergy list
- §170.314(f)(1) Immunization information
- §170.314(a)(11) Smoking status
- §170.314(a)(13) Family health history
- §170.314(a)(17) Advance directives
- §170.314(a)(4) Vital signs, BMI, and growth charts

INFORMATIVE TEST SCENARIO DESCRIPTION: ENCOUNTER: INTAKE

This section provides an informative description of how the test procedure is organized and conducted. It is not intended to provide normative statements of the certification requirements.

The testing workflow for this scenario is shown in Figure 4.



This test scenario is organized into ten sections:

- Demographics – evaluates the capability to record, change, and access a patient’s demographic information
 - The Tester records, changes, and accesses the ONC-supplied patient demographic information
- Problem list – evaluates the capability to record, change, and access a patient’s active problem list
 - The Tester records, changes, and accesses the ONC-supplied patient active problems
- Medication list – evaluates the capability to record, change, and access a patient’s active medication list as well as medication history
 - The Tester records, changes, and accesses the ONC-supplied patient active medications as well as medication history

- Medication allergy list – evaluates the capability to record, change, and access a patient’s active medication allergy list as well as medication allergy history
 - The Tester records, changes, and accesses the ONC-supplied patient active medication allergies as well as medication allergy history
- Immunization information – evaluates the capability to record, change, and access immunization information
 - The Tester records, changes, and accesses the ONC-supplied patient immunization information
- Smoking status - evaluates the capability to record, change, and access the smoking status of a patient
 - The Vendor shows the Tester that all smoking statuses are represented within the EHR, and the Tester records, changes, and accesses the Vendor-supplied patient smoking status
- Family health history – evaluates the capability to record, change, and access a patient’s family health history
 - The Tester records, changes, and accesses the Vendor-supplied patient family health history
- Inpatient setting only – advance directives – evaluates the capability to record whether a patient has an advance directive
 - The Tester enters the Vendor-supplied patient advance directive indicator or advance directive content
- Optional – ambulatory setting only – cancer case information – evaluates the capability to record, change, and access cancer case information
 - The Tester records, changes, and accesses the ONC-supplied patient cancer case information
- Vital signs, body mass index, and growth charts – evaluates the capability to record, change, and access a patient’s height/length, weight, and blood pressure, calculate and display body mass index, and (optional) plot and display growth charts
 - The Tester records, changes, and accesses the ONC-supplied patient vital signs
 - The Tester enters the ONC-supplied patient height and weight data and verifies that the BMI is calculated and displayed correctly
 - The Tester enters the ONC-supplied patient height and weight, and verifies that they are plotted and displayed accurately on age and gender-appropriate growth charts

REFERENCED 2014 EDITION TEST PROCEDURES: ENCOUNTER: INTAKE

The Tester shall use the 2014 Edition Test Procedures available at <http://www.healthit.gov/certification> (navigation: 2014 Edition Testing and Certification > 2014 Edition Test Method) to execute the test scenario. Along with the test scenario data, as described in the Test Scenario Data section, the Tester shall use the following 2014 Edition Test Procedures, in the sequence outlined in Figure 4, to complete the test scenario:

- §170.314(a)(3) Demographics
- §170.314(a)(4) Vital signs, BMI, and growth charts
- §170.314(a)(5) Problem list
- §170.314(a)(6) Medication list
- §170.314(a)(7) Medication allergy list
- §170.314(a)(11) Smoking status
- §170.314(a)(13) Family health history
- §170.314(a)(17) Advance directives
- §170.314(f)(1) Immunization information
- §170.314(f)(5) Cancer case information

The Tester shall use and apply the most current versions of the referenced 2014 Edition Test Procedures, as outlined in Figure 4, during the test. Testers shall use all of the referenced 2014 Edition Test Procedures included in the test scenario without exception, unless one of the following conditions exists:

- Certification is not sought for a criterion included in the test scenario
- A test scenario is made setting-specific for one setting by omitting a criterion included in the scenario which is specific to another setting
- Gap certification will be sought or has been obtained for one of the criteria included in the scenario
- The Vendor wishes to omit optional criteria

Having made the determination that some modification to the provided test scenario is necessary, the Tester shall record the modifications made as part of the test documentation. Following the guidelines for test scenario data provided below, the Tester shall ensure that the test scenario data used for each test input reflects the intended test scenario data output from all of the tests included upstream in the test scenario, including any omitted as a result of one of the conditions outlined above.

TEST SCENARIO DATA

Test scenario data is either ONC or Vendor supplied for each section of the test scenario. The following indicates who supplies the test scenario data for each section of the test scenario:

Criteria	Test Scenario Data Supplier
Demographics	ONC
Vital signs, body mass index, and growth charts	ONC
Problem list	ONC and Vendor
Medication list	ONC
Medication allergy list	ONC and Vendor
Smoking status	Vendor
Family health history	Vendor
Advance directives	Vendor
Immunization information	ONC
Cancer case information	ONC

Where test scenario data are ONC supplied:

Test scenario data is available at <http://www.healthit.gov/certification> (navigation: 2014 Edition Testing and Certification > 2014 Edition Test Method > 2014 Edition Test Scenarios > 2014 Edition Draft Test Scenarios).

ONC supplied test scenario data are provided with the test scenario procedure to ensure that the applicable requirements identified in the criteria can be adequately evaluated for conformance, as well as to provide consistency in the testing process across multiple National Voluntary Laboratory Accreditation Program (NVLAP)-Accredited Testing Labs (ATLs). The provided test scenario data focus on evaluating the basic capabilities of required EHR technology, rather than exercising the full breadth/depth of capability that installed EHR technology might be expected to support. The test scenario data are formatted for readability of use within the testing process. The format is not prescribing a particular end-user view or rendering. No additional requirements should be drawn from the format.

The Tester shall use and apply the provided test scenario data during the test, without exception, unless one of the following conditions exists:

- The Tester determines that the Vendor product is sufficiently specialized that the provided test scenario data needs to be modified in order to conduct an adequate test. The Tester shall ensure that the applicable requirements identified in the criterion can be adequately evaluated for conformance and that the test scenario data provides a comparable level of robustness to the test scenario data supplied by ONC. Having made the determination that

- some modification to the provided test scenario data is necessary, the Tester shall record the modifications made as part of the test documentation.
- The Tester determines that changes to the test scenario data will improve the efficiency of the testing process, primarily through using consistent demographic data throughout the testing workflow. The Tester shall ensure that the applicable requirements identified in the criterion can be adequately evaluated for conformance and that the test scenario data provides a comparable level of robustness to the test scenario data supplied by ONC. Having made the determination that some modification to the provided test scenario data is necessary, the Tester shall record the modifications made as part of the test documentation.
 - Tester shall ensure that the test scenario data input for each test reflects the test scenario data output from each of the prior tests included in the scenario as outlined, and the intended test scenario data output from prior tests included in scenarios upstream as necessary, if scenarios are performed out of sequence or tests are omitted from a scenario.

Any departure from the provided test scenario data shall strictly focus on meeting the basic capabilities required of EHR technology relative to the certification criterion rather than exercising the full breadth/depth of capability that installed EHR technology might be expected to support.

The test procedures require that the Tester enter the applicable test scenario data into the EHR technology being evaluated for conformance. The intent is that the Tester fully controls the process of entering the test scenario data in order to ensure that the data are correctly entered as specified in the test procedure. If a situation arises where it is impractical for a Tester to directly enter the test scenario data, the Tester, at the Tester's discretion, may instruct the Vendor to enter the test scenario data, so long as the Tester remains in full control of the testing process, directly observes the test scenario data being entered by the Vendor, and validates that the test scenario data are entered correctly as specified in the test procedure.

Where test scenario data are Vendor supplied:

Vendor supplied test scenario data shall focus on meeting the basic capabilities required of EHR technology relative to the certification criterion rather than exercising the full breadth/depth of capability that installed EHR technology might be expected to support.

The test scenario procedures require that the Tester enter the applicable test scenario data into the EHR technology being evaluated for conformance. The intent is that the Tester fully controls the process of entering the test scenario data in order to ensure that the data are correctly entered as specified in the test scenario procedure. If a situation arises where it is impractical for a Tester to directly enter the test scenario data, the Tester, at the Tester's discretion, may instruct the Vendor to enter the test scenario data, so long as the Tester remains in full control of the testing process, directly observes the test scenario data being entered by the Vendor, and validates that the test scenario data are entered correctly as specified in the test procedure.

For Vendor supplied test scenario data, the Tester shall address the following:

- Vendor-supplied test scenario data shall ensure that the requirements identified in the criterion can be adequately evaluated for conformance.
- Vendor-supplied test scenario data shall strictly focus on meeting the basic capabilities required of an EHR relative to the certification criterion rather than exercising the full breadth/depth of capability that an installed EHR might be expected to support.
- Tester shall record as part of the test documentation the specific Vendor-supplied test scenario data that was utilized for testing.
- Tester shall ensure that the test scenario data input for each test reflects the test scenario data output from each of the prior tests included in the scenario as outlined, and the intended test scenario data output from prior tests included in scenarios upstream as necessary, if scenarios are performed out of sequence or tests are omitted from a scenario.

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Document History

Version Number	Description of Change	Date
1.0	Posted for Feedback	September 11, 2013

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